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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,045	01/14/2002	J. Barry Shackleford	10017560-1	3502

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EXAMINER

MARSCHER, ARDIN H

ART UNIT PAPER NUMBER

1631

DATE MAILED: 06/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/047,045	Applicant(s) SHACKLEFORD, J. BARRY	
	Examiner Ardin Marschel	Art Unit 1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 12-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-23 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's election of Group I (claims 1-11) in the reply, filed on 4/9/04, is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

VAGUENESS AND INDEFINITENESS

Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, lines 1-2, the claimed circuit arrangement is directed to "searching a parent code sequence for a target code sequence". Consideration of the claimed content of the circuit in lines 3-13 of claim 1 has failed to reveal any limitation which corresponds to such a specific search for a target code sequence. It is acknowledged that a shift register stores and shifts parent code, a matching circuit provides a binary value for matching, and an adder sums the binary values. Nowhere is there a component which determines the target code sequence. The binary value that is summed in the adder may be indicative of finding a target code sequence if there is a binary value determination which corresponds to finding such a target code sequence. No such value is set forth, or even any indication of looking for such a value. Thus, are the metes and bounds of claim 1 defined by the preamble in lines 1-2 or are they defined by a non-target determination search without a clear goal in lines 3-13 of claim 1? Clarification via clearer claim wording is requested. Claims which depend directly or

Art Unit: 1631

indirectly from claim 1 also contain this unclarity due to their dependence and a lack of clarifying this issue.

PRIOR ART

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-11 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Lipman et al. [Science 227:1435 (1985)].

Lipman et al. is directed to searching databases (containing parent sequences) for a newly determined sequence (target sequence) via microcomputers programmed with an algorithm for such searching as summarized in the abstract. It is noted that the instant claims are directed to a circuit arrangement which is reasonably deemed to be inclusive of microcomputer hardware with its associated software program components. Lipman et al. discloses an original algorithm as one type of sequence searching algorithm on page 1435, third column, third full paragraph, through page 1436, second column, line 8, which performs a sequence search algorithm as a computer program. In this computerized algorithm the sequences to be compared for target searching are cited as sequences 1(target) and 2 (parent) sequences and stored (n contiguous codes as in instant claim 10) with character codes (instant claims 2 and 3) for the sequence of amino acids in each as required in instant claim 1, lines 3-6. These sequences are compared in said algorithm by shifting from amino acid pair to amino acid pair as also

Art Unit: 1631

instantly required. A lookup table (instant claim 11 utilized a plurality of times for the sequence comparison; it is noted that claim 11 lacks any limitation as to whether the lookup tables are the same or different) is utilized to look up each amino acid pair and an offset value is determined for each amino acid in order through the two sequences being compared as also instantly claimed in the matching circuit in instant claim 1, lines 7-10. This value is then scored in a pipeline fashion [moving sum (or recent and next) (or prior, intervening, and first codes) as in instant claims 7, 8, or 9] along the sequences wherein the score is increased for an identity match and decreased for each mismatch as described on page 1436, bridging paragraph between the first and second columns. Thus identities vs. mismatch values are summed as required to produce values as in instant claim 1, lines 11-13. This therefore discloses a pipelined added arrangement is disclosed as instantly claimed in lines 11-13 of instant claim 1. The sequence comparisons are also organized in a dot-matrix homology plot as stated on page 1436, first column, lines 11-13, which is reasonably also a pipelined adder tree (or binary vectors as in instant claim 6) for the many diagonals therein represented which are separately determined and scored as instant claim 4. The summed score values are binary values due to being calculated within a microcomputer system programmed as set forth above. It is well known that the actual numerical values that are calculated in such a microcomputer/software arrangement are binary values due to this being the computation values utilized therein. Anderson et al. (P/N 3,969,724) is cited herein only to provide evidence of such binary value computational practice in microcomputers for now many years. Anderson et al. describes binary bit processing in columns 4-22 with

Art Unit: 1631

binary machine code for control also described. In column 19, line 54, through column 20, line 25, registers are operated via bits arranged in Op codes. Bit manipulation is specifically cited in column 17, lines 20-24, as being performed during a variety of software program instructions including adding involving carry and propagate addition as required for addition operations as in instant claim 5. Thus, the above listed instant claims are anticipated by Lipman et al.

No claim is allowed.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the Central PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993)(See 37 CFR § 1.6(d)). The Central PTO Fax Center number is (703) 872-9306.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ardin Marschel, Ph.D., whose telephone number is (571) 272-0718. The examiner can normally be reached on Monday-Friday from 8 A.M. to 4 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, Ph.D., can be reached on (571) 272-0722.

Any inquiry of a general nature or relating to the status of this application should be directed to Legal Instrument Examiner, Tina Plunkett, whose telephone number is (571) 272-0549.

June 25, 2004

Ardin J. Marschel 6/25/04
Ardin J. Marschel
Examiner